

Applicant : Eberhard Piehler
Appln. No. : 10/559364
Page : 3

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application. This listing comprises all claims currently in the application.

Listing of Claims:

1-23. (canceled)

24. (currently amended) A projection device comprising:

 a reflective light modulator for generating an image, said light modulator comprising a plurality of independently controllable pixels which are arranged substantially in one image plane and can be respectively put in at least one of a first and a second state and which form an image-generating region;

 a light source unit for illuminating the pixels;

 projection optics including first and second partial optics, said projection optics having an optical axis; wherein the light source unit, during operation of the projection device, emits an illumination ray bundle for illumination of the pixels, said illumination ray bundle passing through the first partial optics, which contain at least a first lens, and then impinging on the pixels; and

 wherein the light reflected by the pixels being in the first state passes, as a projection ray bundle for projection of the image onto a projection surface, through the first partial optics and then through the second partial optics, and wherein, upon passage of the illumination ray bundle through the first partial optics, a respective reflection ray bundle is generated by the first partial optics at each optical boundary surface of each lens of the first partial optics, said reflection ray bundle propagating up to the second partial optics without further reflection at the optical boundary surfaces; and wherein each optical boundary surface of each lens of the first partial optics is curved and/or arranged offset and/or tilted in the reference plane relative to the optical axis such that, in a reference plane in which the optical axis of the projection optics is located and which is divided by the optical axis into upper and lower half-planes, each reflection ray bundle exiting the first partial optics proceeds completely either into the first or into the second

Applicant : Eberhard Piehler
Appln. No. : 10/559364
Page : 4

half-plane, in order to prevent the reflection ray bundles from being projected onto the projection surface.

25. (original) The projection device as claimed in claim 24, wherein each optical boundary surface of each lens is curved and/or arranged such that all reflection ray bundles exiting the first partial optics proceed into the same half-plane.

26. (original) The projection device as claimed in claim 25, wherein the light source unit is arranged such that the illumination ray bundle in the reference plane is directed onto the first partial optics from the other of the two half-planes.

27. (original) The projection device as claimed in claim 24, wherein the reflection ray bundles are respectively not coupled or only partially coupled into the second partial optics and are blocked out therein no later than an aperture stop of the projection optics.

28. (original) The projection device as claimed in claim 24, wherein a deflecting element for folding the beam path is arranged in the projection optics.

29. (original) The projection device as claimed in claim 24, wherein, in total, the first partial optics have positive refractive power.

30. (original) The projection device as claimed in claim 24, wherein the optical axis of the projection optics, when viewing the image-generating area from above, intersects the image-generating region.

31. (original) The projection device as claimed in claim 30, wherein the optical axis of the projection optics intersects the image-generating region approximately centrally.

Applicant : Eberhard Piehler
Appln. No. : 10/559364
Page : 5

32. (original) The projection device as claimed in claim 30, wherein the optical axis intersects the image-generating region substantially orthogonally.

33. (canceled)

34. (canceled)

35. (currently amended) The projection device as claimed in claim [[34]] 24, wherein the image plane is tilted by a second angle relative to the optical axis.

36. (original) The projection device as claimed in claim 35, wherein said first and said second angles are substantially equal.

37. (currently amended) The projection device as claimed in claim [[33]] 24, wherein imaging error of the projection optics caused by offset and/or tilting of the first lens is compensated for, at least in part, by at least one technique selected from a group consisting of tilting at least one lens of the second partial optics, utilizing at least one prism and utilizing at least one tilted plane plate.

38. (currently amended) The projection device as claimed in claim [[34]] 24, wherein imaging error of the projection optics caused by offset and/or tilting of the first lens is compensated for, at least in part, by tilting at least one lens of the second partial optics and/or by at least one prism or at least one tilted plane plate.

39. (original) The projection device as claimed in claim 35, wherein the imaging error of the projection optics caused by offset and/or tilting of the first lens is compensated for, at least in part, by at least one technique selected from a group consisting of tilting at least one lens of the second partial optics, utilizing at least one prism and utilizing at least one tilted plane plate.

Applicant : Eberhard Piehler
Appln. No. : 10/559364
Page : 6

40. (original) The projection device as claimed in claim 24, wherein the first partial optics comprises at least two lenses, which are offset and/or tilted relative to each other such that imaging errors of the at least two lenses caused by said offset and/or tilting compensate each other at least in part.

41. (original) The projection device as claimed in claim 24, wherein the first lens is a meniscus lens having positive refractive power, with a convex side of the meniscus lens facing the pixels.

42. (original) The projection device as claimed in claim 24, wherein the first lens is made of a material having a refractive index of at least about 1.7.

43. (original) The projection device as claimed in claim 24, wherein, in the reference plane, a partial illumination ray bundle, by which a pixel is illuminated, and a partial projection ray bundle, which comes from the pixel being in the first state, cover a non-contiguous angular range.

44. (original) The projection device as claimed in claim 24, wherein the light modulator comprises a tilting mirror matrix and the reference plane is perpendicular to the tilting axes of the tilting mirrors.

45. (canceled)

46. (original) The projection device as claimed in claim 24, wherein all lenses of the projection optics are located on a common optical axis.

47. (original) The projection device as claimed in claim 24, wherein the projection optics comprise substantially centered and substantially rotation-symmetrical optics.

Applicant : Eberhard Piehler
Appln. No. : 10/559364
Page : 7

48. (original) The projection device as claimed in claim 47, wherein the projection optics are substantially telecentric.

49. (canceled)

50. (canceled)

51. (canceled)